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EDITION

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# CYCLOPEDIA MEDICAL DICTIONARY



F. A. DAVIS COMPANY

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PRINTED IN THE UNITED STATES OF AMERICA

Last digit indicates print number 10 9 8 7 6 5

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# Library of Congress Cataloging in Publication Data

Taber, Clarence Wilbur, 1870-1968.  
 Taber's Cyclopedic Medical Dictionary, edition 18.  
 Medicine—Dictionaries I. Thomas, Clayton L., 1921- II. Title. III. Title.  
 Cyclopedic medical dictionary. [DNLN: 1. Dictionaries, Medical. W 13 T113d]  
 1997 610'.3'21 62-8364  
 ISSN 1065-1357  
 ISBN 0-8036-0194-8  
 ISBN 0-8036-0193-x (indexed)  
 ISBN 0-8036-0195-6 (deluxe)

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Vaccines

Name	Age Administered	Booster Schedule	Comments
BCG (bacillus of Calmette and Guérin)	In epidemic conditions administered to infants as soon as possible after birth.	None	The only contraindications are symptomatic human immunodeficiency virus (HIV) infection or other illnesses known to suppress immunity.
Cholera	See Comments	Every 3 to 6 mo for those who remain in epidemic areas.	Only those traveling to countries where cholera is present need to be vaccinated. Whole cell vaccines provide partial protection for 3 to 6 mo.
DPT (diphtheria, pertussis, tetanus)	At 2 mo, 4 mo, 6 mo, and 15-18 mo. A fifth dose may be given at 4-6 yr.	Tetanus and diphtheria immunization every 10 yr, esp. for people over 50. Persons who have received five doses of tetanus toxoid in childhood may not need a booster until age 50.	Tetanus booster may be required following a wound even though all routine and booster immunizations have been received. Booster of diphtheria toxoid should be given if child under 6 is exposed to diphtheria. Vaccine is contraindicated in cases of acute infection, previous central nervous system damage, or convulsions.
Haemophilus influenzae b (polysaccharide or conjugate)	At 2 mo, 4 mo, discretionally at 6 mo, and at 12-15 mo.	None	SEE: <i>Haemophilus influenzae type b infection</i> .
Hepatitis B	At birth, 2 mo, and 6-18 mo, or at 1-2 mo. All ages if risk is present.	None	Recommended as a routine childhood vaccine. All health care workers should receive it. Immune globulin or hepatitis B globulin may be given to produce passive immunity in exposed contacts. They are contraindicated for those allergic to yeast products.
Influenza (flu)	All ages.	Annually, given prior to time influenza is expected.	Recommended for the elderly, health care professionals, residents of long-term care facilities, and those of any age who have chronic disease of the heart or lungs, metabolic diseases such as diabetes, or immunosuppression.

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immune response; immunity; immunization; immunobiology.

**autogenous v.** Bacterial vaccine prepared from lesions of the individual to be inoculated. SYN: *homologous v.*

**bacterial v.** A suspension of killed or attenuated bacteria; used for injection into the body to induce development of active immunity to the same organism.

**BCG v.** Bacille Calmette-Guérin; a preparation of a dried, living culture of *Mycobacterium tuberculosis*. In areas with a high incidence of tuberculosis, it is used in prophylactic vaccination of infants against tuberculosis. It is also used in adults who are at high and unavoidable risk of becoming infected with tuberculosis. A disadvantage of use of this vaccine is that it produces hypersensitivity to tuberculin. As a result, the skin test for tuberculin sensitivity becomes positive and may persist for 5 years. There is no way to distinguish a positive skin test due to BCG from one caused by infection with *Mycobacterium tuberculosis*.

**cholera v.** A vaccine prepared from killed *Vibrio cholerae*. It is effective for only a few months.

**diphtheria v.** SEE: *DPT v.*

**DPT v.** A combination of diphtheria and tetanus toxoids and killed pertussis bacteria that is administered intramuscularly to immunize children against diphtheria, tetanus, and pertussis.

**DTap v.** A preparation of diphtheria and tetanus toxoids and acellular pertussis proteins. It may be used for the fourth and fifth injections in the series.

**Haemophilus influenzae type b v.** A vaccine prepared from the bacterial polysaccharide (HbPV) or polysaccharide converted to protein (HbCV).

**hepatitis B v.** A vaccine prepared from hepatitis B protein antigen produced by genetically engineered yeast.

**heterologous v.** A vaccine derived from an organism different from the organism against which the vaccine is used.

**homologous v.** Autogenous v.

**human diploid cell rabies v.** ABRHDCV. An inactivated virus vaccine prepared from fixed rabies virus grown in human diploid cell tissue culture.

**inactivated poliovirus v.** An injectable vaccine made from three types of inactivated polioviruses. Previously used name: poliomyelitis vaccine. SYN: *Salk v.*

**influenza virus v.** A polyvalent vaccine containing inactivated antigenic variants of the influenza virus (types A and B either individually or combined) for use in areas expected to have epidemics. Its use

V 1. *Vibrio*; vision; visual acuity. 2. Symbol for the element vanadium.

V 1. Symbol for gas flow. 2. Symbol for ventilation.

v L. vein; vein; volt.

**vaccina** (vák-sí' ná) Vaccinia.

**vaccinable** (vák-sín' á-ŷ) Capable of being successfully vaccinated.

**vaccinal** (vák-sín-ál) Rel. to vaccine or to vaccination.

**vaccinate** (vák-sín-át) [L. *vaccinus*, pert. to cows] To inoculate with vaccine to produce immunity against disease.

**vaccination** (vák-sí-ná shún) [L. *vaccinus*, pert. to cows] 1. Inoculation with any vaccine or toxoid to establish resistance to a specific infectious disease. SEE: *immunization*. 2. A scar left on the skin by inoculation of a vaccine.

**vaccine** (vák-sén, vák-sén') [L. *vaccinus*, pert. to cows] A suspension of infectious agents, or some part of them, given for the purpose of establishing resistance to an infectious disease. SEE: *table*.

Vaccines comprise four general classes:

1. Those containing living attenuated infectious organisms, such as vaccine for poliomyelitis.
2. Those containing infectious agents killed by physical or chemical means, such as vaccines used to protect human beings against typhoid fever, rabies, and whooping cough.
3. Those containing soluble toxins of microorganisms, sometimes used as such, but generally forming toxoids, such as the one used in the prevention of diphtheria and tetanus.
4. Those containing substances extracted from infectious agents, such as capsular polysaccharides extracted from pneumococci.

FUNCTION: Vaccines are used to stimulate an immune response in the body by creating antibodies or activated T lymphocytes capable of controlling the organism. The result is protection against a disease; the duration depends on the particular vaccine. Recovery from measles or diphtheria, for example, usually provides lifelong immunity. The immune system has produced antibodies and memory cells for these pathogens so that subsequent exposure does not result in disease. A successful vaccine does the same thing, usually without risk of illness. The measles vaccine is believed to provide lifelong immunity, but the diphtheria vaccine requires periodic booster doses. More than one type of vaccine may be available for immunization against a specific infectious agent. SEE: *diphtheria*;

# Vaccines (Continued)

Name	Age Administered	Booster Schedule	Comments
MMR (measles, mumps, rubella)	12-15 mo.	4-6 yr or 11-12 yr.	Vaccine will usually prevent measles if given within 2 days after a child has been exposed to the disease. Not given to adults. Contraindicated for those with allergy to egg or neomycin, active infection, or severe immunosuppression.
Plague	See Comments	See Comments	Recommended for those traveling to Southeast Asia, persons who work closely with wild rodents in plague areas, and laboratory personnel working with <i>Yersinia pestis</i> organisms.
Pneumococcal vaccine, polyvalent	Should not be given to children under age 2 or to pregnant women.	None	Vaccine is effective against the 23 most prevalent types of pneumococci. Administered to those who have an increased risk of developing pneumococcal pneumonia. Included are those who have chronic diseases, have had a splenectomy, are in chronic care facilities or are 65 years of age or older.
Polio (live oral trivalent vaccine)	At 2 mo, 4 mo, and 6-18 mo.	At 4-6 mo or 11-12 yr.	Administration is postponed in those with persistent vomiting, diarrhea, acute illness, or immunosuppression and in those who live in the same household as an immunosuppressed person. An alternate polio vaccine is available for immunosuppressed children.
Rabies	See Comments	See Comments	Each exposure to rabies needs to be evaluated on an individual basis by the physician. Postexposure prophylaxis includes the human diploid cell vaccine and rabies immune globulin.

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# Vaccines (Continued)

Name	Age Administered	Booster Schedule	Comments
Typhoid	See Comments	See Comments	Immunization is indicated when a person has come into contact with a known typhoid carrier or there is an outbreak of typhoid fever, or prior to traveling to an area where typhoid is endemic.
Varicella zoster (chickenpox)	12-18 mo.	None	Immunizes against chickenpox in adulthood as well as childhood. The illness is much more serious in adults than in children.
Yellow fever	See Comments	Every 10 years.	Vaccine should be given to all persons traveling or living in areas where yellow fever is present.

is particularly helpful to the aged and chronically ill.

**killed v.** A vaccine prepared from dead microorganisms. This type of vaccine is used for strains that have a high virulence.

**live attenuated measles (rubeola) virus v.** A vaccine prepared from live strains of the measles virus. It is the preferred form except in patients who have one of the following: lymphoma, leukemia, or other generalized malignancy, radiation therapy; pregnancy; active tuberculosis; egg sensitivity; prolonged treatment with drugs that suppress the immune response (i.e., corticosteroids or antimetabolites); or administration of gamma globulin, blood, or plasma. Those persons should be given immune globulin immediately following exposure.

**live measles and mumps virus v.** A standardized vaccine containing attenuated measles and mumps viruses.

**live measles and rubella virus v.** A standardized vaccine containing attenuated measles and rubella viruses.

**live measles, mumps, and rubella virus v.** ABBR: MMR vaccine. A standardized vaccine containing attenuated measles, mumps, and rubella viruses.

**live measles virus v.** A standardized attenuated virus vaccine for use in immunizing against measles.

**live oral poliovirus v.** A vaccine prepared from three types of live attenuated poliovirus. SYN: *Sabin v.*

**live rubella virus v.** An attenuated virus vaccine used to prevent rubella (German

measles). All nonpregnant susceptible women of childbearing age should be provided with this vaccine to prevent fetal infection and the congenital rubella syndrome (i.e., possible fetal death, prematurity, impaired hearing, cataract, mental retardation, and other serious conditions). SEE: *rubella*.

**meningococcal v.** A vaccine prepared from bacterial polysaccharides from certain types of meningococci. Meningococcal polysaccharide vaccines A, C, Y, and W135 are available for preventing diseases caused by those serogroups. A vaccine for meningococcal serogroup B is not available. SEE: *meningitis, acute meningococcal*.

**mumps v.** A live attenuated vaccine used to prevent mumps. Its use should be governed by the same restrictions listed for live attenuated measles virus vaccine.

**pertussis v.** SEE: *DPT v.*

**plague v.** A vaccine made from a crude fraction of killed plague bacilli for immunizing against plague.

**polyvalent v.** A vaccine produced from cultures of a number of strains of the same species.

**polyvalent pneumococcal v.** A vaccine that contains 23 of the known 83 pneumococcal capsular polysaccharides, and induces immunity for 3 to 5 years. This vaccine is estimated to protect against 90% of the pneumococcal types that produce serious disease in patients over 2 years of age. Children at high risk can be vaccinated at age 6 months and reinoculated at age 2 years. The vaccine is par-

ticularly indicated in high-risk groups such as persons with sickle cell diseases, chronic debilitating disease, immunological defects, and the elderly.

**rabies v.** A vaccine prepared from killed, fixed virus of rabies, used prophylactically following a bite by a rabid animal. SEE: *human diploid cell rabies v.*; *rabies*.

**Sabin v.** Live oral poliovirus v. SEE: *poliomyelitis*.

**Salk v.** Inactivated poliovirus v.

**sensitized v.** A vaccine prepared from bacteria treated with their specific immune serum.

**smallpox v.** A vaccine made from the lymph of cowpox vesicles obtained from healthy vaccinated bovine animals. NOTE: This vaccine is no longer used because smallpox has been eradicated worldwide.

**tetanus v.** SEE: *DPT v.*

**typhoid v.** A vaccine made of killed *Salmonella typhi* organisms for immunizing against typhoid. It may not be effective if the person receives unusually large doses of the live organism at the time of exposure.

**varicella (chickenpox) v.** A chickenpox vaccine prepared from attenuated virus. SEE: *chickenpox*; *herpes zoster*.

**yellow fever v.** A vaccine made from a live attenuated strain of yellow fever virus.

**vaccinia** (vāk-sīn'ē-ā) [L. *vaccinus*, pert. to cows] A contagious disease of cattle, produced in humans by inoculation with cowpox virus to confer immunity against smallpox. Papules form about the third day after vaccination, changing to umbilicated vesicles about the fifth day, and at the end of the first week becoming umbilicated pustules surrounded by red areolae. They dry and form scabs, which fall off about the second week, leaving a white pitted depression. SYN: *cowpox*; *vaccina*. SEE: *vaccination*; *varicella*; *variola*.

**v. necrosum** Spreading necrosis at the site of a smallpox vaccination; may be accompanied by similar necrotic areas elsewhere on the body.

**vaccinia immune globulin** Hyperimmune gamma globulin; the therapeutic agent of choice for dermal complications of vaccination for smallpox (i.e., eczema vaccinatum and progressive vaccinia).

NOTE: There is no longer a need for this material because smallpox has been eradicated worldwide.

**vacciniform** (vāk-sīn'i-form) [L. *vaccinus*, pert. to cows, + *forma*, shape] Of the nature of vaccinia or cowpox.

**vaccinogenous** (vāk'sīn-ōj'ēn-ūs) [L. *vaccinus*, pert. to cows, + Gr. *gennan*, to produce] Producing vaccine or pert. to its production.

**vaccinostyle** (vāk-sīn'ō-stīl) A pointed stylus used in vaccination.

**vaccinotherapeutics** (vāk'sīn-ō-thēr'ā-pū'

tiks) Treatment by injection of bacterial vaccines.

**vacuolar** (vāk'ū-ō-lār) [L. *vacuum*, empty] Pert. to or possessing vacuoles.

**vacuolar degeneration** Swelling of cells with an increase in the number and size of vacuoles. SYN: *cloudy swelling*.

**vacuolated** (vāk'ū-ō-lāt'ēd) Possessing or containing vacuoles.

**vacuolation** (vāk'ū-ō-lā'shūn) Formation of vacuoles. SYN: *vacuolization*.

**vacuole** (vāk'ū-ōl) [L. *vacuum*, empty] A clear space in cell protoplasm filled with fluid or air.

**autophagic v.** A vacuole that contains recognizable fragments of the ribosomes or mitochondria.

**contractile v.** A cavity filled with fluid in the cytoplasm of a protozoan. The cavity is emptied by sudden contraction of its walls.

**heterophagous v.** A vacuole that contains substances that come from outside the cell.

**plasmocrine v.** A vacuole present in the cytoplasm of a secretory cell that is filled with crystalloid material.

**rhagiocrine v.** A vacuole present in the cytoplasm of a secretory cell that is filled with colloid material.

**vacuolization** (vāk'ū-ō-lī-zā'shūn) [L. *vacuum*, empty] Vacuolation.

**vacuum** (vāk'ū-ūm) [L., empty] A space exhausted of its air content.

**vacuum aspiration** Removal of uterine contents by using a hollow curet or catheter to which a suction apparatus is attached. It is used before the 12th week of pregnancy.

**vacuum extractor** A device for applying traction to the fetus during delivery by using a suction cup attached to the fetal head. Its use may be hazardous except in the hands of experts.

**vacuum tube** A vessel of insulating material (usually glass) that is sealed and has a vacuum sufficiently high to permit the free flow of electrons between the electrodes that extend into the tube from the outside. In England, it is called a vacuum valve.

**vagabond's disease** Discoloration of the skin caused by exposure and scratching owing to the presence of lice. SEE: *pediculosis corporis*.

**vagal** (vā'gāl) [L. *vagus*, wandering] Pert. to the vagus nerve.

**vagal attack** A condition of dyspnea with cardiac distress and a fear of impending death. The sinking sensation associated with the attack is assumed to be the result of vasomotor spasm.

**vagal escape** A condition in which one or more beats of the heart occur even though the vagus nerve is being continuously stimulated. Stimulation of the vagus normally inhibits heartbeat.

**vagi** (vā'gi) Pl. of *vagus*.

**vagina** (vā-jī'nā) pl. *vaginae*, *vasinas* [L.

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